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ABSTRACT

Creativity is a natural skill, but one that can be lost in the pursuit of linear knowledge in the academic classroom. There are historical reasons why the development of natural creativity has been suppressed (the Enlightenment, for example, with its emphasis on scientific method and empirical proof). Right brain/left brain research and concomitant studies in biofeedback, relaxation, and visualization find that humans have untapped power awaiting them if they learn the techniques that will allow them access to the unconscious. "Cognitive Creactivity" is a process developed specifically for the classroom, although it need not be used there exclusively. Instructors can use this process to help students take control of their thoughts through relaxation and visualization exercises, which are accompanied by affirming statements. Through use of this process instructors help students acquire skills in visualization that will enable them to do consciously what they already know how to do unconsciously, that is, to create, edit, and interpret their reality in accordance with their beliefs. (JD)

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# COGNITIVE CREACTIVITY: A TOOL FOR CREATIVE TEACHING

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> In his introduction to Lateral Thinking, de Bono (1970) said, Education is based on the safe assumption that one only has to go on collecting more and more information for it to sort itself into useful ideas. We have developed tools for handling the information: mathematics for extending it, logical thinking for refining it (p. 9).

We will not, however, utilize our full mental potential until we find the tools to control the creation of information. we rely on the creative aspect of others such as artists, writers, thinkers, historians, composers, but rarely ourselves. The recent emphasis on the study of creativity is relatively new to American education and, therefore, is not generally taught outside of an art or music class. It is often thought that creativity has no application in an academic classroom or in the serious pursuit of linear knowledge.

Until recently, the prevalent assumption was that creativity was something one either inherited or did not. It was not considered a teachable skill. Perhaps one reason many still think that creativity is a limited gift, only bestowed upon the chosen few, is because there seems to be such a lack of it in adulthood. On the other hand, children

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seem to have an abundance of creativity: conjuring up imaginary playmates, taking scenic mind trips, fearing monsters of the dark, and personifying inanimate objects that move, think and hear the desires of their youthful owners. We know, though, that creativity is not the sole possession of children and those few adults who inspire us with their novels, music and art. Creativity is a natural skill that we all hold, but it is one that can be easily lost.

The noted psychologist, Jean Piaget, seemed to understand this when he stated, "If you want to be creative, stay in part a child, with the creativity and invention that characterizes children before they are deformed by adult society" (Raudsepp, 1977, p. 4). Creativity, if it can be lost through education, can also be regained through re-education. But first we must look back at where attitudes about creativity originated in order to rethink and cognitively input new values and attitudes that might produce a more positive effect in and out of the classroom.

There are several historical reasons why the development of natural creativity has been suppressed. The Enlightenment movement, with its emphasis on scientific methods, demanded empirical proof and a fact-producing educational system, thereby repressing creativity. A second reason is that adults with an enhanced creative ability have often been viewed as being "different," living and relating outside the norm. It is easier to think of Edgar Allen Poe

writing his macabre tales as the result of using drugs or alcohol rather than simply to think of him as being creative, using these substances to cope with the creations rather than using them to create.

Documented cases of extraordinary creativity are endless: Thomas Edison, Nikola Tesla, Thomas Wolfe, Friedrich Nietzsche, Carl Jung, and so on. One of the most remarkable poems in the English language is "Kubla Khan" by Samuel Taylor Coleridge, according to John Livingston Lowes (Dement, 1972), who claims its fame comes not only from its beauty but for the way it was created. Coleridge, who published this account of the writing in 1816, says he fell asleep in his chair while reading lines from "Purchas' Pilgrimage" about the Khan Kubla. Coleridge then, reportedly, slept for three hours during which time he composed approximately three hundred lines of poetry. When he awoke, he took pen and ink and wrote down the now famous lines of "Kubla Khan." Other accounts show scientists like Friedrich August Kekule dreaming the solution to the structure of the benzene ring, or Nobel Price winner Otto Loewi, who dreamed the frog heart experiment which resulted in the foundation of the theory of chemical transmission of nerve impulses. Hermann Hilprecht, professor of Assyrian, said a priest visited him in a dream and told him the true translation of the Stone of Nebuchadnezzar, which later proved to be correct (Dement, 1972). These men were

considered different and socially, at least, remained outside the mainstream of society.

Interest in the creative process is not new. Plato and Aristotle discussed it, Blake and Keats wrote about it, Eastern philosophies have promoted methods to tap its source, and psychologists have tried to find out what it is. Now Western science is charting the mind, labeling it the "last frontier." The Enlightenment demanded empirical proof and scientists are now delivering it. They have taken creativity out of the realm of the paranormal and are considering it as a part of the normal mental process of humanity, exploring the avenues of the mind through dreams, drugs, relaxation/visualization and other forms of altered states of consciousness.

Artificial Eggs and Ham

What is creativity? So far, the definitions vary from philosopher to psychologist with nothing definitive. Webster defines it as the process of "bringing into being or making." Rollo May (1975) reminds us that it is not only found among the artists but "one must not rule out the extent to which it is present in captains of modern technology as well as in a mother's normal relationship with her child" (p. 38).

Right brain/left brain research shows two distinct hemispheres specializing in different functions. The right brain seems to be the reservoir for spatial observations, gestures, feelings, passions, dreams, visual and musical

memories (Ornstein, 1973) and what Sigmund Freud called the unconscious. The left brain processes information in a lineal, sequential manner, deals with time, language and mathematical functions. It is the more pragmatic and logical side of the thinking process. The left brain receives input, repeats it, and only makes evaluations based on previously processed data. The right brain, on the other hand, will use the "intuition" or less scientific methods in processing. Creativity is a right brain function.

> It takes little imagination to realize that the right brain reflects the future, while the left brain deals with the now of information. The left brain represents the box of all known information. The right brain represents the information we are yet to accumulate. The fantasies of the old comic book hero Buck Rogers are no longer make-believe. They are now happening. We are in outer space. We are using space belts and rocket ships and space stations (Downey, 1984, p. 17).

It is obvious to most people that using known information is easier. What managers, financiers and world leaders are now aware of is that the best answers are not necessarily in the "box of known information." Right brain thinking has brought about answers to medical mysteries and inventions that have changed the world. Unfortunately, it is difficult for the average person to do right brain thinking because we were not taught how.

In order to activate the right brain, psychologists and researchers have found that we have to fool the left brain in order to allow the intuitive or creative aspect of the brain to unfold and respond. One natural process is what Rollo May calls the encounter. Other writers refer to chaos, tension, activity of the inner life, and Alfred North Whitehead talks of a state of mind that precedes successful critical thinking and inductive reasoning as one of "imaginative muddled suspense" (Ghiselin, 1952). Producing the encounter when desired is the goal we are exploring in this paper.

Take the creation of an omelet for instance. It is more than its ingredients and purpose. A master chef would select the right oil and add a blend of eggs, ham, green peppers, onions, cheese and spices. It would be cooked to perfection, garnished for aesthetic beauty, served with a flourish, and consumed with relish as the creative masterpiece it is. In contrast, one could purchase, in a local fast food establishment, a ham and egg on a croissant-to-go. What is consumed can only be described as artificial eggs and ham. What is lacking? It is food with little taste. It is nourishment without soul. There is no beauty, thought or creativity in the process. It satisfies only a physical hunger. The experience is superficial and does not involve the whole being in a remembered experience. Neither the preparer nor the consumer have been touched and the experience is devoid of synergy.

Creativity entails more than what can be described. It is both the process and the culmination of the process. It is the excitement of discovery and the heuristic pleasure of the "aha" experience. It is not passive, it is participative. It must be wholly engaged in, physically and mentally, as one does when painting a landscape or creating a symphony. It is as much a part of us as any other form of thinking or acting. While educators have placed little emphasis on creativity as a means to achieve success in the classroom, or life in general, the necessary skills to regain our natural creative ability can be developed through careful retraining to unleash our unused potential.

Cognitive Creactivity

The current fashion is to study critical thinking and schools across the nation are implementing courses and seminars on the subject in hopes of increasing students' ability to make better decisions. Psychologists, meanwhile, are in pursuit of the answer to life's problems through the study of creativity, and management researchers concentrate and human behavior to better the decision-making and increase productivity in the world of business. In reviewing the vast amount of literature across the disciplines, it is the writers' opinion that one cannot do any one in isolation of the other despite the fact that researchers seem to be avidly seeking the answers separately. Therefore, we have chosen to combine creating, thinking and acting into a unitized process that helps one

get in touch with one's unconscious in order to be a creative problem-solver. Problem-solving leads to goal setting which is the strongest human force for self-motivation: nothing of consequence is accomplished without a goal. Goal-setting is the process of assimilating information, deciding where one wants to go and creating a positive future. We call this Cognitive Creactivity.

ASSIMILATING INFORMATION (A PAST FUNCTION) = LEFT BRAIN

*COGNITIVE*

CREATING A FUTURE GOAL (A FUTURE FUNCTION) = RIGHT BRAIN

*CREATIVITY*

DECIDING WHERE ONE WANTS TO GO AND DOING IT = WHOLE BRAIN

*ACTIVITY*

*Cognitive (Cre + Activity) Creactivity*

Since current researchers use the analogy that the human brain functions much like a computer, then it is logical to assume that the brain, too, needs a program with which to function correctly. The brain inputs thoughts and perceptions, both positive and negative. The output is seen as behavior and habits. John Lilly (1967) states,

> All human beings...are programmed biocomputers. No one of us can escape our own nature as programmable entities. Literally, each of us may be our programs, nothing more, nothing less (p. viii).

It would seem logical, then, to make sure what kind of programming we are receiving, or doing to ourselves. Since few of us understand yet how to write a definite program for our biocomputers, most of the input and output is measured at less than optimal efficiency. Without conscious direction, one cannot expect consistent worthwhile outcomes. But if the first programs were not input correctly one can reprogram the brain to change the cognitive processes to produce positive creative activity for better self-management.

It is significant to point out that the unconscious cannot determine the difference between fantasy and reality. It lacks the ability to be critical (Wagenfeld and Carlson, 1973). Criticism is a product of the left brain and is based on the values we possess and the experiences we have had. This means it is possible to fool the *unconscious* into accepting that one can achieve a yet unaccomplished goal as a fact. The old adage "If you can dream it you can do it" is more truth than fiction. Through the same mental rehearsal or visualization process now being taught to Olympic athletes as a regular part of their training, each of us can believe that we can do whatever our mind has conceived. Mentally we can trace the pitfalls of the course, successfuly jump the obstacles, and land on schedule at the point we need to be whether it is a business project, a marathon race or the finishing of a scholarly paper.

*Cognitive Creactivity* is a process developed specifically for the classroom, but does not necessarily have to be used there exclusively. It is a process instructors can use to help students to take control of their thoughts through relaxation and visualization, then to use the positive mental power gained to create a success and put this creation of the mind into action..

Researchers and educators have tried to achieve the shift from left to right brain, to tap the creative, through experiments. Some have been successful, some disastrous. We are left with visions of the Creative Saline Tank Immersion process, the Sensory Deprivation Tank, gurus promoting fasting to drain blood from the brain or hanging from one's toes to rush blood to the brain. The Maya may have used bloodletting for much the same purpose and psychologists have tried the primal Scream, EST, and Gestalt therapy to attain the same outcomes. While all of these are not without total validation as a means to achieve an altered state of consciousness, they are difficult to utlize in the classroom. Instead of having a multitude of regimented students seated in uncreative rows of nailed-down desks, doing uniform tasks, and reading boring texts, teachers could help their students achieve altered states of consciousness through relaxation and visualization. The advantage is a positive approach toward achieving self-interest, self-realization, individualization, personal goal setting, coping skills, and thinking creatively and

critically. Helping students seek self-empowerment is allowing them to make the choices to learn in the way they do best, not through fear and anxiety. The other way only leads to destruction, self-doubt, drop-outs and a sense of personal failure for both the teacher and the student.

> When educators become aware of the value of relaxation, there will be a drastic reduction in the number of failures. We know that people cannot do their best when under stress, full of fears, or with butterflies in their stomach....
>
> With relaxation, one can stimulate his [or her] desire for achievement, can increase his [or her] power of concentration and recall, can save time in getting down to study, can absorb material more quickly, and get rid of those butterflies and can increase his [or her] courage and confidence in him [or her] self (Reardon, 1972, p. 7).

Studies show that stress decreases right brain activity and shifts thinking to the left brain (Downey, 1984). Lessening stress, therefore, is an important part of the process of *Cognitive Creactivity*. Through biofeedback and EKG testing, we know that relaxation and visualization can slow the electrical impulses of the brain, altering consciousness and thereby quieting the strong conscious mind. Relaxation is an essential part of the process in order to more easily reprogram the mind with positive suggestions. Relaxation exercises will show an immediate

result by lessening the stresses faced in everyday living. It is to this end many students seek an answer in order to cope. The students we work with are now seeking answers in drugs, alcohol and sex in ever-increasing numbers. Some sit endlessly day-dreaming, never knowing how to make the switch to activity that positively puts the dreams to work. As instructors, it is our firm belief that we have an obligation to help our students set goals, create their dreams and achieve success.

The Trip To Total Consciousness

It is generally assumed that when one sets a goal one wants to achieve it. However, it is in the achievement where we often fail. In the early school years, and before, we begin programming habits of thought. However, it is not in the objectives of the developmental curriculum to teach personal thought control techniques in order to achieve better and easier learning. More often than not, mental programming has been negative which inhibits the successful fruition of one's goals. Early criticism of a drawing, for example, can inhibit artistic development. Saying "That's stupid!" programs feelings of self-doubt and worthliness. We are programmed with the idea that, instead of making a correctable mistake, we have failed a process with no recovery. Without better understanding of ourselves, we accept that "stupid" as a condemnation of the person, the spirit, and believe that is what we are.

Programming failure and negativity is historically recorded and continues to be socially sanctioned today. Take Leonardo da Vinci, the fifteenth century inventor and artist, who designed wings so that people could fly. He was thought to be eccentric in his time. Even worse, flight was thought of as the work of the devil. Misconceptions of that nature still exist. Beliefs like this can be inhibitors, blocking the creative process. Others deny that dreaming is a legitimate function of creativity, or day-dreaming, mystic experiences, Zen, biofeedback, hypnosis, psycho-cybernetics and link them with tarot, astral projection, or using a Ouija Board and label them all as products of the occult or Satanism.

Recently, concomitant studies in the related areas of biofeedback, relaxation and visualization, psycho-cybernetics and hypnosis yielded the same findings: that all humans seem to have untapped power awaiting them if they will just learn the techniques which allow them access to the unconscious. These techniques can produce more than a relaxed, receptive state of consciousness, raise self-esteem, and help in achieving specific goals (McKay, Fanning, 1987).

There is always a strong inclination among most classroom instructors to believe that all new things that are worthwhile come from any source other than sports. In America, athletes were the first to use visualization to enhance performance, and with the advancement of modern

technology in sports training, sports researchers believe that all athletes can achieve the same level of excellence. These are the kinds of goals we want to see in every learning situation for every student. The educator must allow each student to set his or her own goals, and with Cognitive Creactivity the winner on any given day would be the athlete or student who has the better control of his/her mind. Visualization has also been successfully used in increasing confidence, strength, endurance, and concentration. Richard Garver (1977) and Carl Sagan (1977) both report that mental activity and mental practice create new neural pathways that continue to enhance the process of learning. Garver goes on to say that the cognitive rehearsal is essential to establish the new desired behavior. Further studies show that each of us can influence our environment through thoughts. Criminal justice experts training citizens not to become victims use this premise as the key to power. They say that if one thinks like a victim, the thoughts are translated to body movements and one begins to act like a victim: slumped shoulders, wary, afraid. Much like the weaker animal in a pack, an easy mark for the attacker. Conversely, if we want to influence our environment more positively and with a higher purpose, each individual can achieve the chosen goal and operate with an internal locus of control. Julian Rotter (1971) states that the more external a person's locus is the more they feel it makes no sense to work hard for something whose outcomes are

based on luck. Consequently, the achievement of an internal control mechanism helps alleviate learned helplessness and boredom. Isn't this one of the major reasons for educational drop-outs?

The process we use for introducing *Cognitive Creactivity* is relatively simple and takes little time. We follow a relaxation and deep breathing exercise while stating affirmations. "The affirmations you will include in your visualization serve as conscious, positive corrections to the negative comments of your pathological critic" (McKay, Fanning, 1987, p. 238). Helping students acquire skills in visualization is a matter of teaching them to do consciously what they already know how to do unconsciously, that is creating, editing and interpreting their reality in accordance with their beliefs.

The Magic of Doing .

The applications for the use of visualization are endless. Taking students on a guided tour of unexplored territory has proven extremely helpful in receiving correct responses on one history professor's geography exams. Whether teaching Organizational Behavior or English it has helped students find lost thoughts or forgotten concepts and helped to unleash critical blocks to learning and retrieval of information.

These same techniques can be used to help children in crisis or adults under severe stress/anxiety, especially those who experience a great deal of failure with the

resultant lowered self-concept. Building a positive self-image is often essential to learning. The idea that we are subject to whatever the fates have in store for us, without our having control, is crippling; it causes us to evade responsibility for our own lives and delays actions like achieving educational goals in a timely manner. Adults often remark that prior educational experiences were negative and have resulted in fears of failure. The educational system does not teach us that the key to power lies in our own minds. "...we should be careful not to kill their [children] desire to imagine the unusual by belittling imagination. As children grow older, we tend to downgrade imagination and elevate solid subjects..." (Glasser, 1969, p. 175). Glasser goes on to comment that teachers feel guilt when using imagination. And we suspect even embarrassment. But if an academically proven method that could help students achieve the creative encounter when desired is accepted by school systems, it could easily be applied for the benefit of the student, young or old.

The mind is limitless, yet educators continue to teach limits, not allowing the experiences of the individual to interact and become the synergistic force that produces creativity in action, or *Creactivity*. It is this power that provides survival skills in life as well as in the classroom. It seems hopeless to continue to provide our students with limits, not only limits of problems, but limits of solutions. To imprison the mind in the confines

of preconceived answers is to imprison a nation in an uninspired world, devoid of new solutions to our economic crises trips to Mars, or answers to the simple matters of daily survival.

Reports have been given by hostages who have used visualization to survive the terrors of torture and loneliness. One hostage reported he rebuilt his home, board by board, nail by nail. Another took a trip on the Orient Express, savoring the food and seeing the sights as he sat on his stone floor in a windowless room for 444 days. Those who did not have this ability have not been as successful in their rehabilitation, and possibly in surviving. Survival in America's cities can be just as important and certainly as stressful: getting a job, finding a parking place, meeting re-education requirements, coping with stress, child abuse, simple indecision, or just making it to graduation without substance abuse, suicide or dropping out. Rothbart (1971) says,

> There must be a deliberate effort to ameliorate and overcome the culturally conditioned disabilities to which we are all subject...To this end, it is incumbent on our educators to investigate new ways to open up education so as to grant new respect and devote more time to developing total perceptual sensibility...to open up education so as to allow for enthusiasm and inspiration for the emotional and spiritual needs and expressions of students (p. 74).

Education should not be a treasure hunt in which the instructor hides the information and challenges the student to find it. The instructor can take the students on a creative journey where they may find new and unexplored territory, possibly finding new answers to unsolved mysteries, or the greatest achievement - finding the power within. Instead of becoming cloning factories for left brain thinking, schools can release the observer within to find the answers through *Cognitive Creactivity*. We offer this as a valid and practical means to achieve these ends.

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